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EXAMINER

PHAM, THOMAS K

ART UNIT PAPER NUMBER

2121

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/829,529

Applicant(s)

HOYTE ET AL.

Examiner

Thomas K. Pham

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date: _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____   | 6) <input type="checkbox"/> Other: _____                                    |

**First Action on the Merits**

1. Claims 1-22 of U.S. Application 10/829,529 filed on 04/20/2004 are presented for examination.

**Quotations of U.S. Code Title 35**

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

### **Claim Rejections - 35 USC § 102**

6. Claims 1-3 and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,728,594 ("Kiernan").

#### **Regarding claim 1**

Kiernan teaches a method for operating a facility having a plurality of equipment combinations, each equipment combination is operable interactively with at least one other equipment combination (see Col. 3 lines 49-55), said method comprising:

- receiving, in real-time, for each of the plurality of equipment combinations, a plurality of measured process parameters (see Col 8 lines 3-7);
- determining at least one derived quantity from the plurality of measured process parameters (see Col. 8 lines 7-17); and
- recommending a change to an equipment operation based on the measured process parameters and the derived quantities (see Col. 8 lines 18-27).

#### **Regarding claim 9**

Kiernan teaches a method of analyzing the health of an equipment combination operating in a system that includes a plurality of other equipment combinations coupled to the equipment combination through conduits (see Col. 3 lines 49-55), and wherein the equipment combination includes a driver machine and a driven machine coupled in rotational synchronicity, said method comprises:

- receiving a measured process parameter associated with the driver machine (see Col 8 lines 3-7);

Art Unit: 2121

- receiving a measured process parameter associated with the driven machine (see Col. 5 lines 20-24);
- receiving at least one measured process parameter associated with the plurality of other equipment combinations (see Col. 3 lines 60-64); and
- deriving a process parameter quantity for at least one of the measured process parameter associated with the driver machine and the measured process parameter associated with the driven machine using the at least one measured process parameter associated with the plurality of other equipment combinations (see Col. 8 lines 7-27).

**Regarding claim 2**

Kiernan teaches wherein receiving, in real-time, for each of the plurality of equipment combinations and for the at least one individual piece of equipment further comprises receiving measured process parameters intermittently (see Col. 6 lines 15-19).

**Regarding claim 3**

Kiernan teaches wherein determining at least one derived quantity comprises determining at least one derived quantity in real-time (see Col. 3 lines 12-15).

**Regarding claim 8**

Kiernan teaches receiving measured process parameters from a portable data logger (see Col. 5 lines 62-66).

**Regarding claim 10**

Kiernan teaches deriving a process parameter quantity comprises deriving a process parameter quantity for a parameter that is not instrumented (see Col. 7 lines 6-14).

**Regarding claim 11**

Kiernan teaches deriving a process parameter quantity comprises deriving a process parameter quantity for a parameter that is measured by at least one process sensor wherein the derived process parameter quantity is compared to a respective measured process parameter to verify an operability of the at least one sensor (see Col. 5 lines 20-26).

**Claim Rejections - 35 USC § 103**

7. Claims 4, 5, 7, 12-15, 18, 19 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,728,594 (“Kiernan”) in view of U.S. Patent No. 6,445,962 (“Blevins”).

**Regarding claim 12**

Kiernan teaches an integrated monitoring and control system for a plant wherein the plant has a plurality of equipment combinations that are operable interactively with each other and with individual equipment and wherein the combinations are operable to maintain selected plant operational conditions (see Col. 3 lines 49-55), said monitoring and control system comprising:

- a plurality of sensors operatively coupled to the equipment combinations, the plurality of sensors measuring process parameters for monitoring plant operation and assessing equipment combination condition, and providing output signals to said monitoring and control system (see Col. 5 lines 20-34);
- a derived quantity layer communicatively coupled to a data bus, said derived quantity layer configured to:
  - o receive the measured process parameters (see Col. 5 lines 20-24); and

Art Unit: 2121

- compute values for process parameters using the measured process parameters (see Col. 8 lines 7-17);
- a recommendation layer for correlating the health of the equipment combination to at least one of a mitigating procedure, a maintaining procedure, and an operation procedure (see Col. 8 lines 18-27).

Kiernan does not specifically teach a rule set layer comprising at least one rule associated with at least some of the plurality of equipment combinations for determining a health of the equipment combination.

However, Blevins teaches a rule set comprising at least one rule associated with at least some of the plurality of equipment combinations for determining a health of the equipment combination (see Col. 9 lines 38-56) for the purpose of determining new tuning parameters for the control element based on calculated process characteristics (see Col. 3 lines 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the set of rules of Blevins with the system of Kiernan because it would provide or the purpose of determining new tuning parameters for the control element based on calculated process characteristics.

#### **Regarding claim 20**

Kiernan teaches a computer program embodied on a computer readable medium for monitoring a plant, the plant having a plurality of equipment combinations operating interactively with each other and with individual equipment, said program comprising a code segment that controls a computer that receives a plurality of process parameters from sensors operatively coupled to the equipment combinations and individual equipment (see Col. 5 lines 20-34) and then:

Art Unit: 2121

- derives values for process parameters using the measured process parameters (see Col. 8 lines 7-17);
- recommends at least one of a mitigating procedure, a maintaining procedure, and an operation procedure (see Col. 8 lines 18-27).

Kiernan does not specifically teach selects a rule from a set of rules comprising a plurality of commands that direct data analysis for each at least one of measured process parameter, a derived quantity, a plurality of measured process parameters and a derived quantities associated with an equipment combination.

However, Blevins teaches selecting a rule from a set of rules comprising a plurality of commands that direct data analysis for each at least one of measured process parameter, a derived quantity, a plurality of measured process parameters and a derived quantities associated with an equipment combination (see Col. 9 lines 38-56) for the purpose of determining new tuning parameters for the control element based on calculated process characteristics (see Col. 3 lines 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the set of rules of Blevins with the system of Kiernan because it would provide or the purpose of determining new tuning parameters for the control element based on calculated process characteristics.

#### **Regarding claim 4**

Kiernan teaches determining at least one derived quantity comprises: receiving measured process parameters associated with each of the derived quantities (see Col. 8 lines 3-17). Kiernan does



Art Unit: 2121

not specifically teach determining each of the derived quantities using at least one rule from a rule set.

However, Blevins teaches an auto-tuner uses one or more sets of rules in tuning a control element in a process control network (see Col. 9 lines 38-56) for the purpose of determining new tuning parameters for the control element based on calculated process characteristics (see Col. 3 lines 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the set of rules of Blevins with the system of Kiernan because it would provide or the purpose of determining new tuning parameters for the control element based on calculated process characteristics.

#### **Regarding claim 5**

Kiernan does not teach generating a rule set for an equipment combination using at least one of the measured process parameters, the derived quantities, a design specification for the equipment combination, a maintenance history of the equipment combination, and an expert database.

However, Blevins teaches generating a rule set for an equipment combination using at least one of the measured process parameters, the derived quantities, a design specification for the equipment combination, a maintenance history of the equipment combination, and an expert database (see Col. 9 lines 38-56) for the purpose of determining new tuning parameters for the control element based on calculated process characteristics (see Col. 3 lines 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the set of rules of Blevins with the system of Kiernan because it would

Art Unit: 2121

provide or the purpose of determining new tuning parameters for the control element based on calculated process characteristics.

**Regarding claim 7**

Kiernan does not specifically teach receiving measured process parameters from a remote input/output device.

However, Blevins teaches receiving measured process parameters from a remote input/output device (see Col. 5 lines 35-41) for the purpose of determining new tuning parameters for the control element based on calculated process characteristics (see Col. 3 lines 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the set of rules of Blevins with the system of Kiernan because it would provide or the purpose of determining new tuning parameters for the control element based on calculated process characteristics.

**Regarding claim 13**

Blevins teaches a communications layer for sampling said sensor output signals communicatively coupled to the output signals (see Col. 5 lines 4-14).

**Regarding claim 14**

Blevins teaches communications layer is configured to receive network message packets of sensor output data (see Col. 5 lines 23-34).

**Regarding claim 15**

Blevins teaches communications layer is configured to preprocess said sensor output signals (see Col. 5 lines 23-34).

**Regarding claim 18**

Blevins teaches wherein said mitigating procedure includes selectable control actions that are determined from a rule for at least one of facilitating reducing damage to equipment from an equipment failure, and maintaining the plant in an overall operational condition (see Col. 9 lines 38-56).

**Regarding claim 19**

Blevins teaches wherein said maintenance procedure includes maintenance actions that are determined from a rule for at least one of facilitating reducing an equipment outage time, increasing an equipment combination availability, and facilitating reducing equipment combination failure (see Col. 10 lines 3-15).

**Regarding claim 21**

Kiernan teaches directs the computer to receive a plurality of process parameters from a portable data collector (see Col. 5 lines 62-66).

**Regarding claim 22**

Blevins teaches directs the computer to receive a plurality of process parameters from an online process monitor (see Col. 14 lines 32-52).

8. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiernan in view of Blevins and further in view of U.S. Patent No. 6,510,353 ("Gudaz").

**Regarding claim 16**

Kiernan and Blevins do not specifically teach a display layer configured to generate graphical representations of measured process parameters and derived quantities.

However, Gudaz teaches a display configured to generate graphical representation of process parameters and response of the process control loop (see Col. 19 lines 39-60) for the purpose of enabling a user to select a point within a displayed robustness map for running the process control loop (see Col. 4 lines 57-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the display of Gudaz with the system of Kiernan because it would provide for the purpose of enabling a user to select a point within a displayed robustness map for running the process control loop.

**Regarding claim 17**

Gudaz teaches display layer is configured to generate graphical representations of measured process parameters and derived quantities in at least one of real-time, historical values, and a combination of real-time and historical values (see Col. 11 lines 20-38).

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,728,594 ("Kiernan").

**Regarding claim 6**

Kiernan does not specifically teach receiving technical information from an online interactive technical manual for at least one equipment combination. "Official Notice" is taken for the concept and advantages for having an online interactive technical information for at least one equipment is expected and well known in the art. For example, U.S. Patent No. 6,172,428 to Jordan discloses a digital control system for monitoring, acquiring data, and controlling operation of a generator set including providing an on-line technical manual for the digital

Art Unit: 2121

control system (see Col. 18 lines 18-26). It would be obvious to one of ordinary skill in the art to include an on-line technical information of an equipment to Kiernan because it would provide the convenience and quick references for technicians or users as needed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday - Thursday from 6:30 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (571) 272-3687.

Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**. Responses may also be faxed to the **official fax number (571) 273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Thomas Pham**  
*Patent Examiner*



March 8, 2006